# SOUTH BEND LATHE CATALOG 5800

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# SOUTH BEND Precision MACHINE TOOLS

ENGINE LATHES • TOOLROOM LATHES • TURRET LATHES • MILLING MACHINES • SHAPERS • DRILL PRESSES • PEDESTAL GRINDERS

# Precision Built for Precision Machine Work

For more than fifty years South Bend Lathe has been building Precision Machine Tools exclusively. During that time a vast amount of experience has been gained. It has always been the policy of this company to produce a quality product at a reasonable price. Modern plant facilities plus half a century of "know-how" enable us to build a better product and to give you a better value than eyer before.

### **PRICES**

Prices in this catalog are net f.o.b. South Bend, Indiana unless otherwise stated. In accordance with our established policy prices are subject to change without notice and accordingly prices herein are not necessarily those at which deliveries will be made at any future date because we reserve the right to invoice future deliveries at prices in effect at that time.

## WARRANTY

South Bend Lathe Works warrants its products to conform to or excel the specifications set forth in its catalogs in use at the time of sale and reserves the right, at its own discretion, without notice and without making similar changes in articles previously manufactured, to make changes in materials, design, finish, or specifications. South Bend Lathe Works warrants products of its own factory against defects of material or workmanship for a period of one year from date of sale. Liability of South Bend Lathe Works under this warranty shall be limited to replacing, free of charge, f.o.b. South Bend, Indiana, any such parts proving defective within the period of this warranty but South Bend Lathe Works will not be responsible for transportation charges or consequential damages.

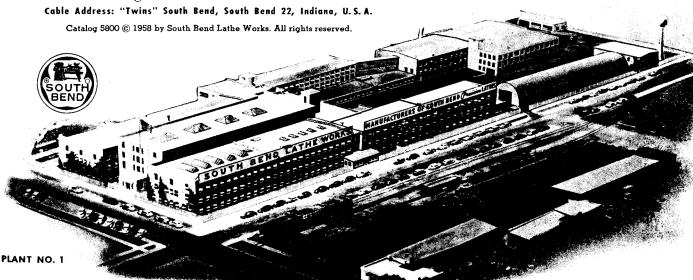
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# TRADE MARKS

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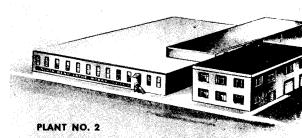
# SOUTH BEND LATHE WORKS

Building Better Tools Since 1906





PLANT NO. 3



# Improved SOUTH BEND Precision LATHES

FEATURES OF 10"-11%" COLLET AND LARGER SIZES

# **DEPENDABLE QUALITY**

You can depend on the quality of South Bend Lathes because they are designed and built by men who take pride in their craftsmanship. Each operation, each part, each assembly, each lathe is manufactured to exacting specifications. Inspection is frequent and rigid. Parts that do not "measure up" are discarded. Final tests are recorded on a factory test card similar to the one shown and are kept on file in our office permanently.

Continual research has resulted in many improvements which contribute to the accuracy, durability, and ease of operation of South Bend Lathes. Each new design is thoroughly tested in our experimental laboratory or by actual use in our own shops (usually both) before it is approved for production.

# **SMOOTH POWER**

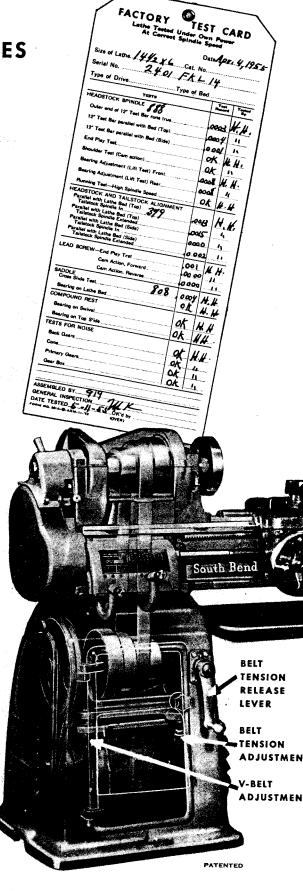
Direct belt drive to the spindle gives you the smooth, silent power so essential for high speed precision finishing operations. For heavy cuts you have a powerful back-geared drive. Motor and driving mechanism are fully enclosed in base of lathe. Quick acting belt tension release and convenient back-gear lever permit changing spindle speeds quickly and easily.

## SUPERFINISHED SPINDLE

Headstock spindle bearing surfaces are hardened, ground and superfinished to a surface smoothness of five microinches (.000005") r.m.s. Spindle runs in bronze bearings which are precision bored and burnished to a smoothness of ten microinches (.000010") r.m.s. Large oil reservoirs and capillary wicks circulate clean filtered oil through the bearings. This bearing construction provides rigid support to the spindle and eliminates vibration which sometimes results when ball or roller bearings are used.

# IMPROVED CARRIAGE

New time saving improvements developed by South Bend engineers add to the convenience and ease of operation of the improved carriage. Large, easy reading graduated collars on cross-feed and compound rest screws have non-glare satin finish chrome surface with black lines and figures. Cross-feed screw has ball thrust bearing for smooth, easy operation. Quick-acting lever operated clutch permits instant engagement or dis-



engagement of power feeds. Ground thread cross-feed screw is optional at extra cost. Also available at extra cost is a fine feed apron handwheel with planetary gear reduction for positioning carriage on bed with extreme precision. See page 47. Saddle has long bearings on bed ways with con-

venient oilers and felt wipers. Both compound rest top and base dovetails have tapered gibs and compound rest swivel is accurately graduated 180°. Carriage lock is conveniently located on right saddle wing. Crossfeed crank and apron handwheel have swivel machine handles. Apron is of the rigid one-piece double wall construction with gear shafts supported on both ends. Large oil reservoir in apron provides automatic lubrication. Half-nuts are dovetailed into back wall of apron and have automatic interlock which prevents engaging power feeds and half-nuts at the same time.

# IMPROVED QUICK CHANGE BOX

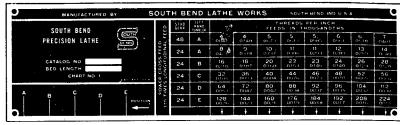
Years of research and testing resulted in the improved double tumbler quick change box, an exclusive South Bend feature. Compact, dependable, and easy to set for any desired thread or feed, this mechanism has been copied but never duplicated. The direct reading index chart shows positions of levers for each of 48 screw threads, 48 power longitudinal feeds and 48 power cross-feeds. Wide range quick change box (on 10" lathe only) has an additional 22 changes making a total of 70 threads or feeds. See index chart illustrations.

Standard screw threads are obtained by shifting the two tumbler levers on the gear box. Special stud and intermediate gearing can be supplied at extra cost for diametral pitch worm threads or other special pitches not shown on the index chart. Metric gear box and lead screw can be supplied in lieu of English (no extra cost) or metric transposing gears can be furnished (extra cost) for cutting metric threads. See page 59.

# RIGID LATHE BED

Beds are heavily constructed with large braces cast in at short intervals. Bed castings are made of a special grade of iron with 30 to 70% steel (depending on size) which produces a hard, close-grained metal having unusual strength and long wearing qualities. Head-stock, tailstock, and carriage are aligned on bed by three large V-ways and one flat way. Hardened bed ways are optional at small extra cost. See page 28.

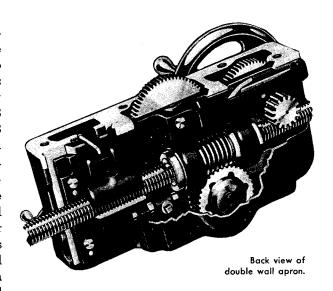
Careful inspection is made to be sure that a uniform bearing is obtained the full length of the bed and that all ways are straight and parallel. A serial number is stamped between the front ways at the tailstock end as shown. A record of each lathe is kept and is filed under this number. When attachments or parts are ordered, the serial number of the lathe should always be stated.



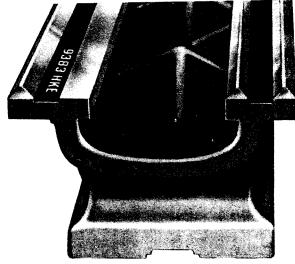
Index chart showing threads cut on 13" and larger lathes.

MANUFACTURED BY SOUTH	BEN	DL	ATH	E W	0 R I	(5	Sau	тΗ	HENI	) IN	Dυ	5 &	Ľ
SOUTH BEND PRECISION LATHE	0.5	STUD	HAND TUMBLER			FE				AND			
PRECISION LAINE	331	40	Α	4 (H I)	1/2	5	51	5 %	6	6	6 %	7.	
CATALOG NO	EEDS WAL	40	8	8	3	10	11	W	12	13	13	14	15
BED LENGTH	SS F Tubi	40	С	16	18	20	22	23	24	26	27	28	30
STOP MACHINE BEFORE	CRO ONG	40	D	32	36	40	44	46	48	52	54	56	60
SHIFTING TUMBLER LEVERS	# S	40	٤	64	72	80	88	92	96	104	108	112	170
A C E G	6 <u>=</u>	40	F	128	144	160	176	184	192	708	216	224	240
B D F POSITION	375	40	G	256	288	320	352	368	384	415	432	448	486
PUSITION										,			T.

Index chart showing threads cut on 10" lathes.



Hardened and ground bed ways are optional at small extra cost. See page 28.



# Specifications

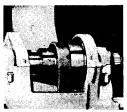
# 10"-11/16" COLLET AND LARGER LATHES

Capacity  Swing over cross slide, engine lathe  Swing over cross slide, engine lathe  Swing over cross slide, toolroom lathe  Swing over cross slide without chip guard, engine lathe only  Between centers (various bed lengths)  Headstock  Capacity through spindle, nose type collet chuck or lathe chuck		10-1/8″	13-1/8"	14 5/0//		
Headstock Capacity through spindle, nose type collet thuck or lathe chuck		5-7/8" 5-3/4" 6-3/4" 14", 20", 27", 34"	7-3/4" 8", 8-3/4" 16", 28", 40", 52"	14.2/6 8-3/4" 8-15/16" 10-1/4" 24", 36", 48", 60"	16-1/4" 9-5/8" 9-5/8" 11-1/8" 33", 45", 57", 81", 105", 129"	25-1/8" 18-3/4" 19-1/4" 30", 42", 54", 78", 102", 126"
Maximum collel capacity, handwheel or handlever type Threaded spindle nose, diameter and threads per inch Cam lock spindle nose, size Long taper key drive spindle nose; size Center, Morse taper Width, each step of 4-step cone pulley Width, each step of 3-step cone pulley		1.3/8" 1.1/16" 2.1/4" – 8 4" type D1 LOO No. 2	1-3/8" 1-1/16" 2-1/4"—8 4" type D1 LOO No. 3 1-3/4" 2-3/8"	1-3/8" 1-1/16" 2-3/8" — 6 4" type D1 LOO No. 3 2-1/16" 2-25/32"	1.3/8" 1.1/16" 2.3/8"—6 4" type D1 LOO No. 3 2-1/4"	1-3/8" 1-1/16" 2-3/8" – 6 4" type D1 1000 No. 3 2-1/4"
Spindle Speeds, Standard    1-speed motor   number   numb	E E	\$\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	8 40-940 16 20-940	8 30—875 16 15—875	8 30—980 16 15—980	8 15-470 16 15-900
With 3-step cone pulley  (2-speed motor pumber number peeds available at extra cost, up to.	E E	12 55—1400 24 27—1400 2400 r.p.m.	6 40-940 12 20-940 1600 r.p.m.	6 30—875 12 15—875 1200 г.р.т.	6 32—945 12 20—945 1200 r.p.m.	6 14—405 12 15—790
Threads and Feeds Number of changes for threads and feeds Range of threads cut Range of longitudinal feeds Range of cross-feeds Lead screw, 29° Acme thread, diameter and threads		70 4 to 480 .0007" to .0836" .0003" to .0303" 3/4"—8	48 4 to 224 .0015" to .0841" .0006" to .0315" 1"—6	48 4 to 224 .0015" to .0841" .0006" to .0315" 1-1/8"—6	48 4 to 224 .0015" to .0841" .0006" to .0315" 1-1/8"—6	48 4 to 224 .0015" to .0841" .0006" to .0315" 1-1/8"—6
Compound Rest Cross slide travel, engine lathe model. Cross slide travel, toolroom lathe model. Angular hand feed, compound rest top slide.		6-1/4" 5-7/8" 2" 3/8" x 13/16"	8-3/4" 8-1/8" 3-1/8" 1/2" x 1-1/8"	10" 9-1/2" 3-1/8" 5/8" x 1-3/8"	10-1/2" 10-1/16" 3-3/4" 5/8" x 1-3/8"	10-1/2" 3-3/4" 5/8" x 1-3/8"
Tailstock Center, Morse taper Spindle travel Set-over of top for taper turning		No. 2 2-1/8" 11/16"	No. 3 4-1/4" 15/16"	No. 3 5.1/4" 15/16"	No. 3 5-3/4" 1"	No. 3 5-3/4" 1"
Motor Recommended size, one-speed Recommended size, two-speed Optional size, one-speed Optional size, two-speed		3/4 h.p. 1 h.p.—1/2 h.p. 1 h.p.	1 h.p. 1-1/2 h.p.—3/4 h.p. 1-1/2 h.p. 2 h.p.—1 h.p.	2 h.p. 2 h.p.—1 h.p. 3 h.p.—1-1/2 h.p.	2 h.p. 2 h.p.—1 h.p. 3 h.p. 3 h.p.—1-1/2 h.p.	2 h.p. 2 h.p.—1 h.p. 3 h.p. 3 h.p.—1-1/2 h.p.

# Only South Bend

# OFFERS ALL THESE

# Optional Features



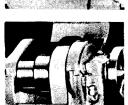
## FOUR-STEP PULLEY (13" and larger lathes only)

Provides eight spindle speeds with one-speed motor, sixteen speeds with two-speed motor. Desirable for toolroom work and finishing operations.



# **COOLANT EQUIPMENT**

Coolant pump, reservoir, oil pan and piping speed production and improve finish on many classes of work. Supplied at extra cost. See page 44.



# THREE-STEP PULLEY

Provides 6 or 12 spindle speeds with one-speed motor, 12 or 24 with two-speed motor. Wide belt transmits maximum power for heavy roughing cuts.



## HARDENED TAILSTOCK **TAPER**

Tailstock spindle with hardened and precision ground taper furnished in lieu of regular at small extra cost. See page 47.



# HARDENED BED WAYS

Hardened and ground bed ways resist wear and scoring. They are supplied to order in lieu of regular bed ways at extra cost. See page 28.



# HANDLEVER TAILSTOCK

Supplied in lieu of regular tailstock at extra cost. Also available as an extra. Speeds drilling and reaming operations. See page 39.



# THREADED SMNDLE

Supplied unless cam lock or long taper key drive spindle is specified. Precision milled thread assures perfect interchangeability of chucks, face plates and work fixtures.



# **GROUND THREAD CROSS-FEED SCREW**

Special cross-feed screw assembly with hardened and ground thread supplied in lieu of regular at small extra cost. See page 47.



# CAM LOCK SPINDLE

4" Type D1 Cam Lock Spindle supplied to order in lieu of regular threaded spindle at extra cost. Chucks, face plates and other accessories available. See pages 28 and 29.



# SPECIAL FINISH

Any desired color or combination of colors can be supplied in lieu of the regular gray enamel finish on South Bend Lathes. See page 38 for extra charges.



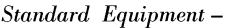
### LONG TAPER SPINDLE

Size LOO Long Taper Key Drive Spindle supplied to order in lieu of regular threaded spindle at extra cost. Chucks, face plates, and other accessories available. See pages 28 and 29.



# METRIC EQUIPMENT

Metric lead screw, metric quick change box and metric graduations supplied in lieu of English at no extra cost. Metric transposing gears at extra cost. See page 59.



ENGINE LATHES (10"-11/16" Collet and larger)

Equipment supplied and included in the price of each South Bend Engine Lathe is as follows:

Thread indicator dial Thread cutting stop Small face plate
Round tool post assembly
60° Centers and spindle sleeve
Necessary belting and motor Wrenches, installation plan and manual Prices of 10"-11/4" Collet Bench Lathes also include steel bench with built-in chip pan. Electrical equipment is not included. See pages 60-63.

# TOOLROOM LATHES (10"-11/4" Collet and larger)

South Bend Toolroom lathes are built to ultra-precision tolerances even closer than our Engine Lathes. Special lead screw and spindle —even closer train out Engine Latties. Special reduscrew and spinder alignment tests are made on each toolroom lathe as it is assembled to assure precision for the most exacting toolroom work. In addition to all regular equipment supplied with South Bend Engine Lathes, the Toolroom Lathes have the following equipment:

Precision lead screw Handwheel collet attachment (less collets) Collet rack

Telescopic taper attachment Large face plate Chip pan Micrometer carriage stop

